

IN THE CLAIMS:

Please CANCEL claims 19-31 and 34 without prejudice or disclaimer and ADD new claim 40 in accordance with the following.

1. (PREVIOUSLY PRESENTED) A burst error correction method in an HD-DVD having data groups encoded therein, adding an inner parity of e bytes and an outer parity of f bytes to an error correction block having a size of n bytes in a row direction \times m bytes in a column direction, the error correction method comprising:

obtaining a plurality of inner parity blocks (PI blocks) by segmenting the error correction block in an inner parity (PI) direction into x segments, wherein x is an integer equal to or greater than 2;

generating e -byte PI for each of the plurality of PI blocks generated by segmenting, and adding the PIs in the PI direction;

generating f -byte outer parity (PO) in a PO direction of the error correction block having PIs, and adding the POs in the PO direction; and

interleaving a plurality of data groups and the plurality of PIs in the PI direction in the error correction blocks having PIs and POs.

2. (PREVIOUSLY PRESENTED) The error correction method of claim 1, wherein the PIs are Reed-Solomon codes and satisfy $(n/x) + e \geq 256$.

3. (ORIGINAL) The error correction method of claim 2, wherein $(n+e) \times (m+f)$ is less than or equal to 64K.

4. (ORIGINAL) The error correction method of claim 3, wherein n is 688 and m is 96.

5. (ORIGINAL) The error correction method of claim 4, wherein x is 172 and e is 8.

6. (ORIGINAL) The error correction method of claim 5, wherein f is 12.

7. (CANCELLED)

BEST AVAILABLE COPY

O.K. to enter
09/23
7/11/04

8. (PREVIOUSLY PRESENTED) The error correction method of claim 1, wherein the interleaving further comprises:
gathering bytes having the same order in each of the data groups; and
allocating the gathered bytes sequentially according to their order.
9. (PREVIOUSLY PRESENTED) The error correction method of claim 8, wherein the reallocating is performed in the PI groups in a single data row.
10. (PREVIOUSLY PRESENTED) The error correction method of claim 1, wherein the interleaving further comprises reallocating a plurality of PIs (PI0, PI1, ..., PI n/x) by gathering bytes having a same order in bytes included in each of the plurality of PIs, thereby forming reallocated PI groups.
11. (ORIGINAL) The error correction method of claim 10, wherein the reallocating is performed in the PIs in a single data row.
12. (ORIGINAL) The error correction method of claim 10, further comprising:
moving and allocating the reallocated PIs between the reallocated PIs groups.
13. (ORIGINAL) The error correction method of claim 11, further comprising:
interleaving the POs in the PO direction.
14. (ORIGINAL) The error correction method of claim 13, wherein the PO direction interleaving further comprises:
obtaining an $n \times f$ byte bit stream by lining up the f -byte POs sequentially, and forming a divided PO by dividing the bit stream into each $\{(n \times f)/m\}$; and
moving and allocating the divided PO in the PO direction in each row.
15. (PREVIOUSLY PRESENTED) The error correction method of claim 4, wherein $n \times m$ is a basic address unit recorded on the HD-DVD, the method further comprising:
dividing the error correction block into a plurality of data frames, each of the data frames comprising a 4-byte ID, a 2-byte IED, an 18-byte RSV, two 2-KB user data blocks, and two 4-byte EDCs.

BEST AVAILABLE COPY

16. (ORIGINAL) The error correction method of claim 1, further comprising determining f , which is a number of PO direction parities, and x , which is a number of PI direction segments, are decided so that a result of multiplication of x with f can be divided by o , which is a number of data frames in one error correction block, without remainder, and a recording frame is formable even when f is not equal to o .

17. (PREVIOUSLY PRESENTED) The error correction method of claim 16, wherein $(n/x) + e \geq 256$ so that an operation in a Galois Field is performed.

18. (ORIGINAL) The error correction method of claim 8, wherein the reallocating is performed in the PI groups in a plurality of data rows.

19-34. (CANCELLED)

35. (PREVIOUSLY PRESENTED) An error correction method adding an inner parity of e bytes and an outer parity of f bytes to an error correction block having a size of n bytes in a row direction x m bytes in a column direction, the error correction method comprising:

obtaining a plurality of inner parity blocks (PI blocks) by segmenting the error correction block in an inner parity (PI) direction into x segments, wherein x is an integer equal to or greater than 2;

generating e -byte PI for each of the plurality of PI blocks generated by segmenting, and adding the PIs in the PI direction;

generating f -byte outer parity (PO) in a PO direction of the error correction block having PIs, and adding the POs in the PO direction; and

interleaving a plurality of data groups and the plurality of PIs in the PI direction in the error correction blocks having PIs and POs,

wherein the interleaving further comprises reallocating a plurality of PIs ($PI_0, PI_1, \dots, PI_{n/x}$) by gathering bytes having a same order in bytes included in each of the plurality of PIs, thereby forming reallocated PI groups.

36. (PREVIOUSLY PRESENTED) The error correction method of claim 35, wherein the reallocating is performed in the PIs in a single data row.

37. (PREVIOUSLY PRESENTED) The error correction method of claim 35, further

BEST AVAILABLE COPY

comprising:

moving and allocating the reallocated PIs between the reallocated PIs groups.

38. (PREVIOUSLY PRESENTED) The error correction method of claim 36, further comprising:

interleaving the POs in the PO direction.

39. (PREVIOUSLY PRESENTED) The error correction method of claim 38, wherein the PO direction interleaving further comprises:

obtaining an $n \times f$ byte bit stream by lining up the f -byte POs sequentially, and forming a divided PO by dividing the bit stream into each $\{(n \times f)/m\}$; and
moving and allocating the divided PO in the PO direction in each row.

40. (NEW) A burst error correction method in an HD-DVD having data groups encoded therein, adding an inner parity of e bytes and an outer parity of f bytes to an error correction block having a size of n bytes in a row direction \times m bytes in a column direction, the error correction method comprising:

obtaining a plurality of inner parity blocks (PI blocks) by segmenting the error correction block in an inner parity (PI) direction into x segments, wherein x is an integer equal to or greater than 2;

generating f -byte outer parity (PO) in a PO direction of the error correction block, and adding the POs in the PO direction;

generating e -byte PI for each of the plurality of PI blocks generated by segmenting, and adding the PIs in the PI direction; and

determining f , which is a number of PO direction parities, and x , which is a number of PI direction segments, so that a result of multiplication of x with f can be divided by o , which is a number of data frames in one error correction block, without remainder, and a recording frame is formable even when f is not equal to o .

BEST AVAILABLE COPY